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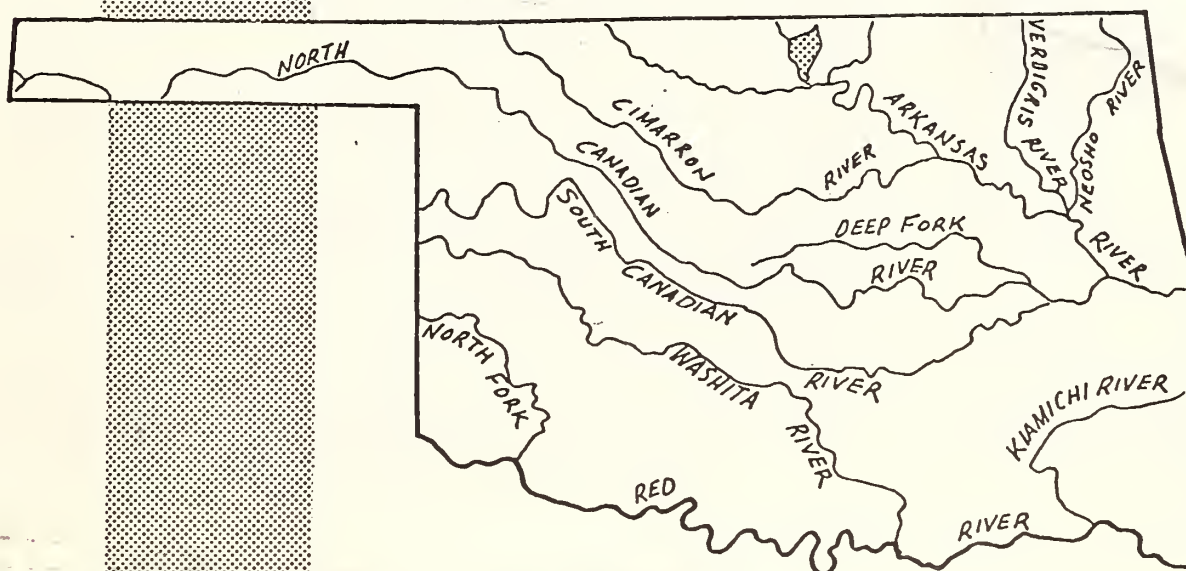


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# FINAL ENVIRONMENTAL IMPACT STATEMENT

## LOST-DUCK CREEKS WATERSHED

KAY CO., OKLAHOMA



OCTOBER 1980

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

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FINAL  
ENVIRONMENTAL IMPACT STATEMENT

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LOST-DUCK CREEK WATERSHED  
Kay County, Oklahoma

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Abstract:

This document describes the anticipated environmental impacts of the installation of conservation land treatment, 12 floodwater retarding structures, and approximately 12.75 miles of channel work in the Lost-Duck Creek Watershed, Kay County, Oklahoma. The significant impacts caused by the project will be in the areas of economics, prime farmland, social well-being, flood reduction, fish and wildlife habitat, and reductions in sediment and erosion. Adverse impacts will be mostly short-term and are in the areas of noise, air pollution, erosion, water pollution, and water quality. The most significant environmental impact will be the destruction of terrestrial wildlife habitat and stream aquatic habitat. Alternatives considered during plan development were: land treatment only, land treatment in combination with floodwater retarding structures, and land treatment in combination with floodwater retarding structures and channel work. About 70 percent of the land treatment measures have been installed and about 75 percent of the watershed area is adequately protected. None of the structural measures have been installed. The project is sponsored by the Western Kay County Conservation District, Arkansas River-Kay County Conservation District, Lost Creek Conservancy District, Duck Creek Conservancy District, and the Commissioners of the Land Office.

This document was prepared in accordance with Section 102(2) (c) of the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 USC 4321 et seq).

Prepared by: U.S. Department of Agriculture, Soil Conservation Service

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September 1980



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# ENVIRONMENTAL IMPACT STATEMENT

## LOST-DUCK CREEK WATERSHED

Kay County, Oklahoma

Prepared in accordance with Section 102(2)(C) of the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 USC 4321)

### SUMMARY

#### I. Description of Project Purpose and Action:

The Lost-Duck Creek Watershed Plan proposes a project for watershed protection and flood prevention on an area of 55,040 acres to be implemented under the authority of the Watershed Protection and Flood Prevention Act (P.L. 566 83rd Congress, 68 Stat. 666) as amended. The works of improvement will include land treatment, 12 floodwater retarding structures, and about 12.75 miles of channel work. The plan is estimated to cost about \$3,868,820 to install. The average annual benefits are estimated to be \$243,350. The benefit-cost ratio of the project is 1.1:1.0.

#### II. Status and Action Covered:

About 70 percent of the land treatment measures have been installed and about 75 percent of the watershed area is adequately protected. None of the structural measures have been installed.

This environmental impact statement will cover the remaining land treatment, 12 floodwater retarding structures, and the 12.75 miles of channel work.

#### III. Summary of Impacts:

Installation of the remainder of the project will have the following effects:

1. Soil loss from the upland areas of the watershed will be reduced 17 percent by land treatment.
2. Sediment yield at the mouth of the watershed will be reduced by 27 acre-feet per year, a 66 percent reduction.
3. Average annual flooding will be reduced by 13,251 acres, an 83 percent reduction.
4. Sediment yield to Keystone Reservoir will be reduced by 14 acre-feet annually.
5. About 6,022 acres will be converted to prime farmland in the watershed due to a reduction in flooding.



6. A small ground water recharge will occur in the immediate site vicinities of the floodwater retarding structures.
7. About 389 acres of agricultural land will be converted to semi-permanent water.
8. Up to 959 acres of land involved in the flood pools of the flood control structures will be occasionally inundated.
9. Wildlife habitat will be reduced for terrestrial species in the structures and channel construction areas.
10. Habitat will be increased for aquatic species in the floodwater retarding structures and decreased for aquatic species in the modified stream channel segments.
11. Total water volume will be slightly reduced at the mouth of the watershed due to evaporation from the structures.
12. Water quality will be improved below structures due to a reduction in sediment after structures and stream banks are stabilized by vegetation.
13. A major economic stimulus will be provided in the watershed area due to construction expenditures and a significant average annual net benefit from installation of the project.
14. Short-term increases in noise, dust, exhaust emissions, erosion, sediment, and other inherent construction effects will temporarily disturb local residents and wildlife in the vicinity of construction activities.
15. Thirty-seven acres of important woodland and rangeland habitat will be inundated in the structure areas and 20.5 acres of woodland habitat will be destroyed by channel work. This 57 acre loss will be replaced by an equal amount of mitigation plantings.

#### IV. Potential Controversies and Conclusions:

The conclusion of the interdisciplinary team which made this assessment is that the remainder of this project can be installed with no significant adverse impacts on the human environment. The group also concluded that there was no other acceptable method of solving the watershed problems except as proposed in the watershed plan. At the present time there are no significant controversies concerning the project.

#### V. Summary of Review:

Agencies from which written comments were requested include:

Department of the Army  
Department of Commerce  
Department of Health, Education, and Welfare



Department of the Interior  
Department of Transportation  
Environmental Protection Agency  
Office of Equal Opportunity, USDA  
Governor of Oklahoma  
State Clearinghouse  
Regional Clearinghouse  
State Historic Preservation Officer



# ENVIRONMENTAL IMPACT STATEMENT 1/

for the

LOST-DUCK CREEK WATERSHED  
Kay County, Oklahoma

## INTRODUCTION

The Lost-Duck Creek Watershed plan was prepared in 1969 under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, as amended (16 USC 1001-1008). It was approved for installation on June 24, 1970. The local sponsors of the plan are the Western Kay County Conservation District, Arkansas River-Kay County Conservation District, Duck Creek Conservancy District, Lost Creek Conservancy District, and the Commissioners of the Land Office.

About 70 percent of the land treatment measures have been installed and about 75 percent of the watershed area is adequately protected. None of the structural measures have been installed.

The Environmental Impact Statement has been prepared in accordance with Section 102(2)(C) of the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 USC 4321 et seq). Responsibility for compliance with the National Environmental Policy Act rests with the Soil Conservation Service.

Frequent and severe flooding affects 9,654 acres of flood plain. Of this amount, 5,199 acres are common flood plain with the Chickaskia River. Flooding caused by the creeks and the adjoining Chickaskia River combined occurs on the average of one to two times a year. This results in extensive damage to crops, pastures, fences, roads, bridges, and agricultural lands. The average annual area flooded is 15,947 acres. During the planning period a 10-year frequency rain fell in the Lost-Duck Creeks drainage area. This storm inundated 8,826 acres of floodplain, of which about 4,750 acres were common with the Chickaskia River, and resulted in over \$108,500 agricultural damages (1968 prices). Additional severe damage was done to railroads, roads, and bridges. With the project installed flooding from this storm would have been reduced to about 2,912 acres. Field fences are washed out frequently. Consequently, permanent fencing necessary for full utilization of the flood plain is generally impractical. County and state roads and bridges and other nonagricultural improvements suffer severely from floodwaters.

1/ All information and data, except as otherwise noted, were collected during watershed planning or during the environmental evaluation period by the SCS, USDA.



In addition to causing adversity and hardship, floods have prevented farmers from fully utilizing the optimum combination of resources on the flood plain land. Crop rotations are interrupted and other approved cultural practices are discouraged, and many times prohibited, because of the risk of loss due to floods.

Frequent flooding has caused erosion damage on 1,163 acres (over 12 percent) of flood plain land. Damages range from 20-30 percent in terms of reduced productivity.

About 95 percent of the sediment produced from the upland area results from sheet erosion. The effects of severe sheet erosion are apparent in the many acres that were once cultivated but have been allowed to return to a grass or tree cover because of a loss of topsoil. Gully and road erosion produces about 5 percent of the sediment from the upland area.

Sediment deposition has damaged a total of 269 acres, about 3 percent of the flood plain. Based on reduced productivity, this area has been damaged 10 to 20 percent. The sediment is mostly silty sand and fine sand and ranges in depth from 6 to 18 inches.

An average of 41 acre-feet of sediment per year reaches the mouth of the watershed. Of this amount, 28 acre-feet (68 percent) continues downstream until it enters Keystone Reservoir.

#### ALTERNATIVES - INCLUDING THE PLANNED PROJECT

When this watershed plan was developed, a system of priorities was established for considering alternatives to solve the watershed problems. The first alternative considered was land treatment. An evaluation of this alternative disclosed that although benefits were obtained, the reduction in flood damages was not sufficient to solve the watershed problems.

The next alternative considered was land treatment and a system of floodwater retarding structures. A field examination was made of potential floodwater retarding structure sites. Sites with poor storage possibilities and those which would inundate highways or other expensive improvements not economically feasible to relocate were dropped from further consideration. The remaining site locations were studied in detail. Damages resulting from floodwater, sediment, and erosion were determined from surveys of the flood plain area and damage inventories obtained from farmers and ranchers. Reduction in these damages by the installation of the floodwater retarding structures was estimated on the basis of reduction of the depth and area inundated as determined by flood routings. Evaluation of this alternative disclosed that the combination of land treatment and flood control structures would not provide the level of protection desired.

The third alternative evaluated was a combination of alternatives 1 and 2 plus channel work. Flood damages were calculated using flood routings under without project conditions and conditions with the proposed works of improvement installed. Benefits determined were allocated to individual measures, or groups of interrelated measures, on the basis of effect of each on the reduction of damages. Alternative systems of structural measures were evaluated and the combination selected which would most nearly meet the project objectives



at the lowest cost. (See Work Plan for Watershed Protection and Flood Prevention - Lost-Duck Creek Watershed, Kay County, Oklahoma, for more detailed information.)

The third alternative was selected as the plan which could best solve the watershed problems. For the purposes of this impact statement, the remaining land treatment, 12 floodwater retarding structures, and the 12.75 miles of channel work are considered to be the selected plan.

The land treatment measures in the plan provide the basis for an effective conservation program and are necessary for a sound watershed protection program. The conservation districts agree to accelerate the establishment of land treatment practices which have a measurable effect on the reduction of floodwater, sediment, and scour damages.

Land treatment for the area above floodwater retarding structures will allow the structural measures to function more efficiently by reducing runoff and sediment delivered. Erosion damage and sediment production from fields and pastures will be decreased by providing improved soil-cover conditions. These measures include conservation cropping systems, cover and green manure crops, crop residue use, range seeding, and pasture planting to establish good cover on grassland and formerly cultivated lands. They also include construction of farm ponds to provide improvement, protection, and maintenance of grass stands. These conservation practices effectively improve soil conditions and allow rainfall to soak into the soil at more rapid rates.

In addition to the soil improving measures, land treatment includes contour farming, terracing, diversion construction, and grassed waterways. These measures will also have a measurable effect in reducing peak discharge by a slowing runoff water from fields and in reducing erosion damage and sediment production.

Certain land treatment measures aimed primarily at reducing floodwater, sediment, and erosion, will contribute to the expansion and perpetuation of wildlife resources.

The 12 single purpose floodwater retarding structures are earthfill embankments with a drop inlet spillway (See Figure 1). They will have a sediment storage capacity of 3,430 acre-feet and a detention capacity of 7,838 acre-feet. The sediment pools of floodwater retarding structures will inundate 315 acres of bottom land and 248 acres of upland. In addition, the detention pools will inundate 55 acres of bottom land and 728 acres of upland.

The emergency spillways will be rock or vegetated earth. Timber clearing in the pool areas will be restricted to that required to provide borrow material.

The structures will operate automatically. Floodwater will be temporarily stored in the detention pool of each structure and released at a controlled rate through the principal spillway.

Provision is made at all sites for 100-year sediment storage. The risers in the principal spillway of all single purpose floodwater retarding structures will be set at the 50-year sediment storage elevation.



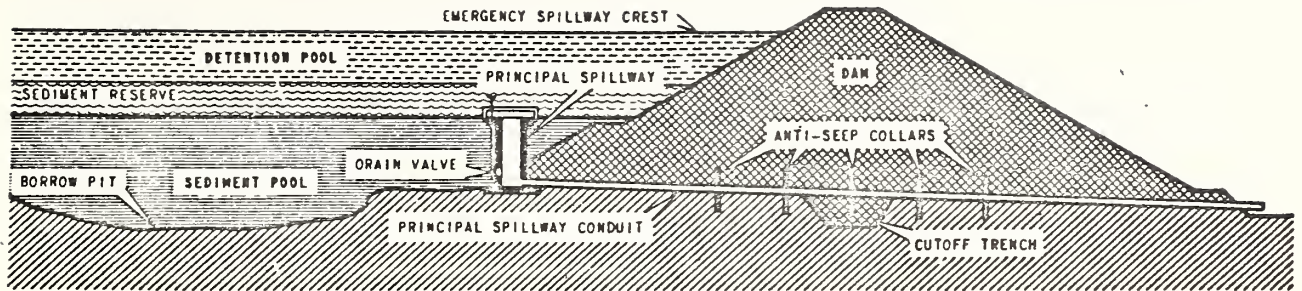


Figure 1

#### SECTION OF A TYPICAL FLOODWATER RETARDING STRUCTURE

Hazard classifications are given to SCS floodwater retarding structures based on possible damages below the structure if the dam should fail. The following classifications are used:

- Class (a) - rural setting - damage to farmland, country roads or farm outbuildings.
- Class (b) - rural setting - damage to isolated homes, main highways, minor railroads, or cause interruption of public utilities.
- Class (c) - rural or urban setting - serious damage to homes, industrial or commercial buildings, public utilities, main highways or railroads, or cause loss of life.

All of the structure in this project have been assigned a hazard classification of (a), except site L-2 which has a (b) classification. The most severe and damaging type of dam failure would occur with the embankment breaching suddenly from top to bottom at the point of maximum height when the dam is operating at maximum design. Even though the possibility of failure is remote, this type of breach was analyzed to determine the classification. The probability of a rain occurring which would produce a maximum design depth for a class (a) dam is approximately once in 1,700 years; however, some of the larger dams in this project exceed this probability considerably. This is then coupled with the joint probability that at the precise moment the dam reaches design stage, a sudden and complete failure of the embankment would occur. Such a combination of events is extremely remote from a statistical standpoint.



Approximately 12.75 miles of channel work is planned. The channel will range in depth from 7 to 14 feet and the bottom width will range from 14 to 24 feet. The channel will provide sufficient capacity to prevent damaging overflows from occurring more frequently than an average of once in two years. Grade stabilization structures will be installed where needed to prevent erosion where side channels enter the main stream. Improved channels will follow the alignment of the present channels as nearly as feasible and practical.

At present there are about 78 acres in channels. The project will add about 49 acres to the channel areas. About 140 acres will be required for spoil placement. The spoil areas will be selected to avoid disturbance of remaining wildlife habitat.

The mitigation measures to be included will be accomplished as design features of the channel work and structures as follows:

1. Fish and wildlife habitat losses caused by channel construction will be minimized by using the least damaging methods. Where important habitat exists, channel work will be done from only one side of the channel. (See Appendix B for mitigation and construction requirements.) Channel realignment will be routed to avoid as many important habitat areas as possible. Clearing and snagging will be used where possible to avoid greater damages.
2. Wildlife plantings will be made to replace important habitat losses caused by channel work. Mitigation will include approximately 20.5 acres of small blocks and strips along the channel. The small blocks will provide open areas for grass and herbaceous vegetation. Woody plantings will be made along the strips to replace the timber lost with channel work. Refer to Appendix B for specific amount and locations of mitigation areas. Approximately 37 acres of mitigation will be established to replace important habitat losses at structure locations. The mitigation areas will be fenced where required for management purposes as determined by Soil Conservation Service, Oklahoma Department of Wildlife Conservation, and Fish and Wildlife Service biologists.

Another alternative considered was to abandon the project. This alternative would result in a savings of the cost of installing the structural measures. However, the flooding and attendant damages would continue to occur. This alternative was not acceptable to the sponsors.

The sponsors are committed to completion of the project essentially as developed in the original plan, and the SCS concurs.

#### AFFECTED ENVIRONMENT

Lost-Duck Creeks Watershed, with a total drainage area of 55,040 acres (86.0 sq. mi.) including 9,654 acres of bottom land flood plain, is located in north central Oklahoma in Kay County. Lost Creek heads approximately 3 miles north of Peckham, Oklahoma, and flows south-southwest for 13 miles into the Chickaskia River, 4 miles downstream from Blackwell, Oklahoma. Duck Creek heads approximately 6 miles northwest of Peckham, Oklahoma, and flows south-southwest for about 23 miles to its confluence with the Chickaskia



River 10 miles downstream from Blackwell, Oklahoma. Each creek empties directly into the Chickaskia River and is a separate hydrologic unit. Both streams are classed as intermittent and both have previously been channelized.

The topography is rolling to flat. Elevations within the watershed range from approximately 930 feet at the mouth of Duck Creek to 1,190 feet at the northeast watershed boundary.

The major geological formation in this watershed is the Wellington formation of Permian age. This formation consists primarily of shale with thin interbedded limestones. Most of the upland soils are medium textured, slowly permeable to permeable and highly productive. The flood plain soils, formed from recent alluviums, are mostly dark, medium textured, permeable and very productive. The major soil series in the watershed are Kaw, Brewer, Reinach, Lela, Kirkland, Tabler, Bethany, Norge, and Vanoss. The watershed is in the Central Rolling Red Prairies Land Resource Area.

The land use in the watershed is cropland 75 percent, rangeland 16 percent, pastureland 2 percent, forest land less than 1 percent, and other land 7 percent.

The agricultural economy of the watershed depends primarily on small grains (wheat) and livestock (stocker calves). About 97 percent of the farm income is derived from these two enterprises (2). 1/ Small acreages of soybeans, alfalfa, and other crops are grown in the watershed.

The forest area in the watershed exists primarily in narrow bands adjacent to the streams and water courses. Although limited in amount, the forested areas contain a wide diversity of species which are normally found in this region. Such species as elm, ash, mulberry, cottonwood, hackberry, pecan, walnut, box elder, chinaberry, bois d'arc, and willow are found.

The watershed lies in the moist subhumid climatic zone. The average annual rainfall is about 28 inches. The average growing period of 209 days extends from April 6 to November 1 (4).

The average size of farm in Kay County in 1974 was 423 acres. In 1974 over 81 percent of the farms had an income above \$2,500. Of this number 23 percent sold from \$20,000 - \$40,000 worth of products, another 21 percent had sales of \$40,000 - \$100,000 and over 8 percent sold over \$100,000. The average value of agricultural products sold from farms with sales above \$1,000 was \$33,029 in 1974 (7). The watershed farms are similar to the county farms.

About 30 percent of the farmers in the area work outside of the watershed and receive the majority of their income from non-farm operations (7). Most work in nearby Blackwell or the oil and gas industry which is very active in the county. In December 1979, unemployment in Kay County was only 2.5 percent (3).

The city of Blackwell with a 1970 population of 8,645 touches the west watershed boundary. There are no other communities in the watershed.

1/ Numbers in parenthesis at the end of sentences refer to the reference number in the Reference Section.



## ENVIRONMENTAL CONSEQUENCES

A broad range of environmental, economic, and social factors were considered during the environmental evaluation process. Areas of potential impact were evaluated and an analysis made of the significance of the impact to the environment as shown in the following table.

### ANALYSIS OF IMPACTS

<u>Economic, Environmental, and Social Factors</u>	<u>Degree of Impact</u>	<u>Significant to Environment</u>	<u>Remarks</u>
Floodwater	Major	Yes	Primary concern of sponsors
Erosion and Sedimentation	Major	Yes	Primary concern of sponsors
Land use, flora, and prime farm land	Moderate	Yes	
Streams, Lakes, and Wetlands	Moderate	Yes	
Fish and Wildlife	Moderate	Yes	
Endangered and Threatened Plants and Animals	None	No	None present
Ground Water	Minor	No	
Water Quality	Moderate	Yes	
Irrigation	Minor	Yes	
Visual resources	Minor	No	
Transportation	Moderate	Yes	
Air Quality	Minor	No	
Mineral Resources	Minor	No	
Cultural Resources	Minor	Yes	None present of national significance
Economic and Social	Major	Yes	Primary concern of sponsors
Recreation	Minor	No	

From this analysis, it was found that the project would have no significant impacts on irrigation and recreation. Therefore, these factors are not addressed in this section although basic data concerning these items have been evaluated in order to determine the magnitude of project impacts. A scoping process was used to determine the intensity in which each factor was analyzed.

A description of the project impacts is presented below. The magnitude of the impact is reflected in the amount of detail in which each factor is addressed. Appropriate baseline data has been included to establish needed perspective.



## FLOODING

The 9,654 acre flood plain is subject to frequent and severe flooding. A rain which is expected to occur once in a 10-year period would inundate about 8,826 acres. There are 15,947 acres flooded on the average each year.

### Impacts

With the project in place, a 10-year frequency rain would flood 7,022 acres. This is a reduction of 1,804 acres or 20 percent. The average number of acres flooded each year would be reduced from 15,947 acres to 2,696 acres. This is a reduction of 13,251 acres or 83 percent.

## EROSION AND SEDIMENTATION

Sediment deposition has damaged 269 acres of flood plain. The sediment is primarily silty sand and fine sand ranging from 6 to 18 inches in depth.

About 41 acre-feet of sediment are delivered annually to the mouth of Lost-Duck Creeks from all sources within the watershed. It is estimated that about 28 acre-feet of this total reaches Keystone Reservoir each year.

Flooding has caused erosion damage on 1,163 acres of the flood plain. Sheet erosion has scoured from 4 to 12 inches of surface soil from some areas. Measured by reduced productivity damage on the eroded areas varies from 20 to 30 percent. Sheet erosion from cultivated upland is still the major source of sediment in the watershed.

### Impacts

The completed project will reduce the sediment yield at the mouth of the watershed by 27 acre-feet a year, a 66 percent reduction. Soil loss from the uplands will be reduced from 96 acre-feet to 80 acre-feet a year, a decrease of 17 percent, by the conservation land treatment measures. The sediment reaching the flood plain from the uplands will be reduced over 50 acre-feet per year by the completed project.

Sediment production will undergo a slight temporary increase during the construction process due to earth-moving activities and the accompanying removal of vegetative cover. The structures and other disturbed areas will be vegetated for erosion control as soon as construction has been completed.

## LAND USE, FLORA, AND PRIME FARMLAND

The present land use in the watershed is:

<u>Land Use</u>	<u>Acres</u>
Forest land	120
Rangeland	8,650
Cropland	41,130
Pastureland	1,240
Other land	3,900
Total	55,040



Major crops grown in the area are wheat, grain sorghums, soybeans, and alfalfa. Sudan, oats, and barley are grown in smaller amounts. The predominant trees in the area are hackberry and elm. However, there is a large diversity of other species and many of these approach the dominant species in numbers. Common trees are ash, mulberry, cottonwood, pecan, walnut, box elder, chinaberry, and willow.

There are presently 30,981 acres of prime farmland in the watershed.

### Impacts

With the project completed, water will be stored on about 389 acres until it is eventually replaced by sediment. An additional 959 acres will be involved in the detention pools. The pool areas are presently occupied primarily by cropland with smaller areas of rangeland and even smaller areas of forest land involved. It is expected that the intermittent inundation of the cropland in the detention pools will eventually result in its conversion to tame pasture.

The 12.75 miles of channel work will involve about 127 acres. This area is presently mostly cropland with a narrow fringe of timber along the stream-banks. There is also a small amount of rangeland and one small area of wetlands. The present stream channel occupies about 78 acres. About 57 acres of wildlife habitat plantings will be made along the channels and near the site areas and managed specifically for wildlife habitat. These plantings will be made to mitigate project induced damages to the present habitat.

About 6,221 acres of land now frequently flooded will be converted to prime farmland due to the reduction in flooding. About 199 acres of prime farmland will be inundated in the sediment pools of the sites. This will result in a net increase of 6,022 acres of prime farmland in the watershed, a 19.4 percent increase.

### STREAMS, LAKES, AND WETLANDS

The average annual rainfall at Blackwell is 28.0 inches. The average annual runoff is about 5 inches for the watershed. Defined streams within the watershed are ephemeral in the uplands and intermittent in the flood plain. There are no major tributaries to either Lost or Duck Creeks. There are four named lakes in the watershed with a surface area larger than 10 acres. These are: Vanselous, 100 acres; Diversion Dam, 28 acres; Wentz, 27 acres; and Poling, 10 acres. In addition to these larger lakes, there are several farm ponds in the watershed. There are about 4 acres of Class 2 wetlands (inland fresh meadows) along the channel of Lost Creek, and except for a few farm ponds classified as Class 5 wetlands (inland open freshwater) there are no other wetlands in the watershed as defined in USDI Circular 39 (8).

### Impacts

The project will result in the addition of 12 new lakes in the watershed with a combined surface area of 389 acres in the sediment pools. The surface area of these sites will range from 15 to 88 acres. When these sites are completed there will be a net reduction in water leaving the watershed or 4.1 percent per year due to evaporation from the sediment pools. This reduction will



gradually decrease until it reaches zero when the sediment pools will have filled with sediment.

All of the structures are located on the Wellington geologic formation. This formation is predominantly red shale with thin limestone and dolomite beds. The formation will allow some localized ground water recharge in the site vicinities. The major impact of this ground water recharge will be the prolongation of water flows in the streams below the structure locations.

The flow regime of the creeks in the watershed will be altered below the structures. Ground water recharge will increase the flows, and the retarding effect of the structures will increase the duration of flows. The peak flows will also be greatly reduced. Consequently, flooding will be reduced and streamflow will be stabilized for prolonged periods.

A study conducted by Oklahoma State University concluded that even partial upstream impoundment appreciably improves environmental conditions, as measured by species diversity, some distance downstream (1). However, any downstream benefits from impoundments will be negated by additional stream channel work on Lost and Duck Creeks.

### FISH AND WILDLIFE

There is a diversity of wildlife species in the watershed. Important game species include bobwhite quail, cottontail rabbit, mourning dove, and fox squirrel with some Rio-Grande turkey, ring-necked pheasant, and white-tailed deer present. Non-game species include songbirds, hawks, owls, rodents, coyotes, bobcats, other predators and furbearing mammals. The watershed is in the central flyway and migratory waterfowl use watershed ponds and lakes during migration.

The fishery resource exists primarily in the lakes and farm ponds where channel catfish, sunfish, and large mouth bass are common sport fishes. Duck Creek normally holds enough water in pools to maintain a fish population. Sampling this area at four locations in the lower half of the stream revealed 12 species of fish including largemouth bass, channel catfish, stonerollers, shiners and minnows, bullheads, carp, mosquitofish, and sunfish.

### Impacts

The project will affect the wildlife populations primarily through the loss of native timber and rangeland habitats. The elimination of 51 acres of stream-associated timber represents a 42 percent reduction of available woody vegetation in the watershed. Wildlife species dependent on this habitat for all or part of their habitat requirements will be reduced accordingly. Small amounts of high value rangeland habitat will also be lost at structure locations. Fifty-seven acres of wildlife mitigation will be obtained in the site vicinities and along the channel to compensate for these losses.

The 12 flood control structures in this project will provide 389 acres of surface water in the watershed. This new water supply will increase the overall diversity of wildlife around the lakes and provide resting and feeding areas for migratory waterfowl. However, the benefits derived from increased surface water supplies would be at the expense of an already diminished timber and rangeland resource.



The lake fisheries of the watershed will be increased for locally adapted game and non-game species. Low to moderate quality fish habitat is expected. Runoff from primarily cultivated land will concentrate sediment and chemical fertilizer pollutants in some impoundments. Water quality in streams below the sites will improve with reduced sediment and chemical yields after the structures and channelized stream segments have been stabilized with soil binding vegetation. As mentioned previously in the segment on Streams, Lakes, and Wetlands, groundwater recharge and the retarding effects of the structures will prolong stream flows; however, channel work will result in a uniform stream bottom eliminating pools and riffles desirable in stream ecosystems. The loss of stream cover, undercut banks, and disturbance of substrate will further degrade the streams' aquatic habitat. The previously channelized streams, especially Duck Creek, have slowly developed some features characteristic of natural streams, re-establishment of the aquatics system to present levels will be a slow process requiring several years.

Although maintenance activities along the channel will periodically disturb wildlife species, these activities should create no more disturbance than the present agricultural practices used on land immediately adjacent to the channel.

#### ENDANGERED AND THREATENED PLANTS AND ANIMALS

The most recent Federal listing of endangered species lists one species of threatened bird which could occur in the watershed area. The bald eagle is known to overwinter in the area. The eagle is most concentrated from November to March and is found near large bodies of water or major rivers. There are no other known rare or endangered species in the watershed.

#### Impacts

The project will have no adverse impact on the wintering habitat of bald eagles. The probability of these birds utilizing surface waters created by the project is extremely remote.

#### GROUND WATER

Ground water is the source of supply for the town of Blackwell as well as farms in the area. Ground water use for irrigation has not been extensively developed.

#### Impacts

All of the structures are located on the Wellington geologic formation. This formation is predominantly red shale with thin limestone and dolomite beds. The formation will allow some localized ground water recharge in the site vicinities. The major impact of this ground water recharge will be the prolongation of water flows in the streams below the structure locations.

#### WATER QUALITY

Data collected from Duck Creek for a 2-year period indicates that the water quality is poor even during periods of high flow. The primary detrimental factor is sulfate content which is well above drinking water standards. The concentration of dissolved solids is also high during periods of low flow.



The average maximum and minimum values for various water quality indicators are given below (4).

DUCK CREEK STATION

<u>INDICATOR</u>	<u>MAXIMUM</u>	<u>MINIMUM</u>
Sulfate ( $\text{SO}_4$ ), ppm	960	310
Chloride (Cl), ppm	210	28
Dissolved Solids, ppm	1,880	701
pH	8.4	7.5
Hardness as $\text{CaCO}_3$ , ppm	1,140	470
Sodium Adsorption Ratio (SAR)	1.6	0.9
Specific Conductance (Micromhos at 25°C)	2,230	1,010

The maximum ratings were obtained during periods of low flow and the minimum readings were obtained following runoff producing storms.

The minimum levels of sulfate and dissolved solids in Duck Creek exceed the recommended maximum levels for drinking water(2)(9). Although the Sodium Adsorption Ration (SAR) and the specific conductance are considered to be acceptable for irrigation water, the dissolved solids levels would rate Duck Creek questionable for irrigation purposes. Additional analyses should be made prior to irrigating from any of the planned floodwater retarding structures (5)(9). Lost Creek is expected to have similar quality water.

Even though there is considerable application of commercial fertilizer in the watershed, there is very little biological indication of high nutrient levels in the streams.

Impacts

The completed project will improve the quality of water below the structures by reducing sediment in the streamflows. This reduction will result from proper land treatment and the trapping of sediment by floodwater retarding structures.

Sediment production will undergo a slight temporary increase during the construction process due to earth-moving activities and the accompanying removal of vegetative cover. The structures and other disturbed areas will be vegetated for erosion control as soon as feasible after construction has been completed. This extra sediment will result in lower water quality during and shortly after construction.



## AIR QUALITY

Air quality in the watershed is good. The major pollutant is blowing dust from county and private roads.

### Impacts

Air quality in the watershed will be essentially unaffected by the planned project. There will be a brief temporary increase in noise levels and pollution of air from dust and exhaust emissions which are inherent in the construction process. However, since all of the sites are in a rural area, with normally brisk winds prevailing much of the year, the minor effects of construction activities on even the local air quality will be imperceptible.

## CULTURAL RESOURCES

The National Register of Historic Places does not list any historic sites in the watershed. The areas of direct impact to which access could be gained were surveyed by a professional archeologist and no sites eligible for inclusion in the National Register were discovered.

In the event cultural resources are discovered during construction, the Interagency Archeological Services of the Heritage Conservation and Recreation Service (Denver Office), United States Department of the Interior, will be consulted to determine appropriate action in accordance with Section 3 of Public Law 93-291.

Since this is a federally assisted local project, there will be no change in the existing responsibilities of any federal agency under Executive Order 11593 with respect to archeological and historical resources.

### Impacts

There will be no significant impacts on the archeological and historical resources which have been located to date.

## ECONOMIC AND SOCIAL ASPECTS

The economy of the watershed depends heavily on agriculture. However, about 30 percent of the farmers in Kay County receive their major income from off-farm activities (7). The watershed is similar to the county in this respect. Many people in the watershed are employed in nearby Blackwell or in the oil and gas industry which is very active in the region. About 44 percent of the farmers in the area worked off the farm 100 days or more in 1970 (6). The two major agricultural enterprises in the watershed are wheat farming and stocker steer production. About 69 percent of the farm income comes from crop production and 30 percent comes from livestock sales (7).

The 1970 census showed only 787 blacks in Kay County and the population had been decreasing. About 4 percent of the county residents were of foreign descent. Of this group, over 33 percent were of German origin (6). In 1969, the average size of farm in the county was 379 acres. By 1974 the size had increased to 423 acres (7). There are 1,073 acres of land in the watershed under the jurisdiction of the Bureau of Indian Affairs.



## Impacts

This planned project will have a significantly beneficial effect on the economy of the area. Estimated average annual monetary floodwater, sediment, erosion, and indirect damages will be reduced \$243,350 (1977 prices) by the total project. The elimination of frequent flooding will allow farm operators to restore flood plain land to former production levels and allow them to produce at the most efficient level possible. The average annual net benefits of the project are estimated to be \$22,230 (1977 prices). The reduction in flooding will also enable school buses and rural mail carriers to better keep their schedules. Risks to travelers from flood damaged roads and bridges will be reduced.

It is estimated that 154 jobs will be created during the construction phase of the project and another 21 permanent jobs will be created due to the improved regional economy. The reduced flood damages to crops, pastures, and improvements will directly benefit 180 owners and operators of flood plain land and the project development will indirectly benefit another 356 individuals.

The savings from reduced flood damages and the new monies brought into the area by contractors who will purchase many supplies locally and hire local labor, will provide a major stimulus to the local economy. The stabilized farm income plus the improved economic conditions of local construction workers will generate an economic stimulus which will result in local merchants improving goods and services through the area. The reductions of flooding will reduce the worry and tension of local residents. The 12 small lakes scattered throughout the watershed will add a pleasing note to the appearance of the local countryside. The stabilization of the stream base flows will also improve the aesthetics of the area.

## VISUAL RESOURCES

Visual resources are those elements of resources which combine to form the surrounding landscape. Vegetation, landforms, structures, and water bodies are the basic landscape elements analyzed in the Lost-Duck Creek watershed. The topography is gently rolling to flat, with dominant landforms totally lacking. The land use is agricultural, with vegetation consisting primarily of wheat in the growing season interspersed with areas of pasture and range. Trees occur only in narrow strips bordering the stream channels. Scenic values in the watershed are generally low. Analysis of landscape resource quality, landscape use, and visibility revealed 6 key viewpoints in the watershed. Of these, 4 will receive special consideration in the design and construction of project measures to reduce visual impacts and insure that the completed project blends with the surrounding landscape. The remaining 2 viewpoints will not be affected by the project.

## Impacts

Since the watershed area is short of water surface area, the permanent water associated with the floodwater retarding structures will add diversity to the landscape and enhance the overall visual resources of the Lost-Duck Creek Watershed. The land treatment program will reduce unsightly erosion and the floodwater retarding structures will not only reduce flooding but will make a scenic addition to the landscape. Structures which could create visual



anomalies will incorporate design features allowing them to effectively blend into the landscape by borrowing from the naturally occurring form, line, color, and texture of the area. Due mainly to the contrast in lines and forms, the structural measures will be somewhat dominant in the existing landscape. In order to reduce such visual dominance special treatment such as the use of shaped landforms or plant materials for screening purposes may be required. Native plants will be used to revegetate disturbed areas where practical to blend with the existing landscape.

### MINERAL RESOURCES

The watershed lies in an area of abundant mineral resources. In the surrounding area there are commercial deposits of zinc, copper, limestone, sand and gravel, gypsum, volcanic ash, salt, oil and gas. In the watershed only sand, gravel and volcanic ash are mined. There are also numerous oil and gas wells in the watershed and it is crossed by numerous oil and gas pipelines.

#### Impacts

The project will cause no significant impacts to the mineral resources in the watershed. The installation of some structural measures will result in the relocation of some pipelines.

### TRANSPORTATION

The watershed has two major highways crossing the watershed from east to west, State Highway 11 and U.S. Highway 60. U.S. Highway 177 runs north and south just to the west of the watershed as does U.S. Highway 77 on the east. The watershed is also traversed by over 160 miles of county roads. The watershed is also crossed by the St. Louis and San Francisco railroad. The Atchison - Topeka and Santa Fe railroad runs through the City of Blackwell on the west side of the watershed and the Santa Fe railroad goes through Ponca City just to the east.

#### Impacts

The major impacts of the planned project on transportation will be the reduction of damages to roads and bridges in the flood plain and the reduced interruption of traffic on county roads and state highways during floods.

Traffic will be temporarily interrupted on some of the county roads during construction of the channel. Installation of five of the floodwater retarding structures will necessitate the alteration of some county roads.

### CIVIL RIGHTS AND EQUAL OPPORTUNITIES

The blacks are the only minority group in the county with a population of at least 400 persons (the minimum number tabulated in the U. S. Census). There is some Indian land in the watershed, and due to the concentration of blacks in urban areas, the American Indians are believed to be the largest minority group in the watershed.



## Impacts

All of the contractors who will install the project and the sponsors are required to comply with all of the requirements respecting nondiscrimination of equal opportunity. The presence of new jobs in the watershed area will result in new employment opportunities for members of minority races.

## ADVERSE IMPACTS

A complete listing of project impacts is presented beginning on page 5. A listing of adverse environmental impacts resulting from installation of the project follows.

1. Occasionally interrupt use of land in the floodpool areas which are subject to intermittent inundation.
2. Restrict land use on areas used for dams, spillways, appurtenances, and mitigation areas.
3. Destruction of about 51 acres of riparian timber and 6 acres of rangeland, with displacement or destruction of associated wildlife populations.
4. Create localized short-term increases in erosion and turbidity of stream water during the construction process.
5. Result in short-term air and noise pollution caused by operation of heavy equipment during construction.
6. Decrease the water flow from the watershed by 4.1 percent per year until the sediment pools fill with sediment.
7. Decrease the quality of stream fisheries and aquatic habitat until the stream ecosystem becomes re-established.

## SHORT-TERM USES VS LONG-TERM PRODUCTIVITY

This plan provides a level of protection consistent with the needs and objectives of present and anticipated use of the flood plain lands. It provides protection for some of the most productive land in the watershed and it will aid in the orderly development of the natural resources of the area. The plan gives consideration to conservation and environmental measures to preserve the land for use by future generations.

Several Public Law 566 watershed projects are in various stages of completion in the vicinity of the Lost-Duck Creek Watershed. When all are completed, their collective influence is expected to significantly reduce flooding with all of its attendant damages and associated problems. The Lost-Duck Creek Watershed project should make a small, but significant contribution to this reduction.



## COMMITMENT OF RESOURCES

The cost, energy for construction, and a portion of the materials are totally committed resources in this project. In addition, about 389 acres of land devoted to water will be removed from agricultural production. About 48 acres of land involved in dams and spillways will be restricted in its agricultural uses. Agricultural production on the 959 acres involved in the detention pool areas of the structures will also be restricted due to occasional flooding.

## PROJECTS OF OTHER AGENCIES

Keystone Reservoir, a Corps of Engineers project, is located on the Arkansas River about 90 miles downstream from the mouth of Lost and Duck Creeks. This project will have little effect on the Reservoir with the exception of the sediment reduction discussed earlier.

Corbin Reservoir Project, a part of the Arkansas-White-Red River Basins Study, is located on the Chickaskia River in southern Kansas. This reservoir will feature water supply, flood control, recreation and fish and wildlife conservation. This project, in combination with the Lost-Duck Creeks program would reduce the frequency of flooding on the common floodplain area of Lost-Duck Creeks and the Chickaskia River.

There are no known conflicts between this project and the objectives or specific terms of approved or proposed federal, state, or local land use plans or policies.

## CONSULTATION

A widely advertised public meeting was held in December 1979 to discuss the planned project. The meeting was attended by 33 individuals. No opposition to the project was expressed and the consensus of opinion was that the environmental benefits would be considerably greater than the negative impacts. A scoping meeting was also held in December 1979 to determine which environmental factors should receive the most emphasis during the environmental evaluation.

A biological reconnaissance of the watershed was made by personnel from the Oklahoma Department of Wildlife Conservation, U. S. Fish and Wildlife Service, and the Soil Conservation Service. Wildlife habitat considerations and mitigation measures recommended by the U.S. Fish and Wildlife Service were included in development of this planned project.

A professional archeologist surveyed the archeological resources in the watershed and no significant archeological sites were discovered. The results of the survey are available for review at the SCS, State Office, Farm Road and Brumley Streets, Stillwater, Oklahoma.

The state archeologist, state historic preservation officer, and the director of the Historic Sites Division of the Oklahoma Historical Society were consulted during the assessment of the archeological and historical resources. Continued consultation and cooperation with these individuals and the archeologist employed by the Oklahoma Conservation Commission will be pursued through the final installation stages of the project.



Consultation with the Secretary of Interior will be continued through the installation phases of the project to insure that schedules of appropriate action on these resources will not delay construction activities.

The following agencies and organizations have commented on the Draft EIS:

- Department of the Army
- Department of Commerce
- Department of Health and Human Services
- Department of the Interior
- Environmental Protection Agency
- Forest Service, USDA
- Office of Equal Opportunity, USDA
- Oklahoma Department of Wildlife Conservation
- State Clearinghouse
- State Historic Preservation Officer
- Regional Clearinghouse



# LIST OF PREPARERS AND QUALIFICATIONS

Name	Present Title (Time in Job-Yrs.)	Education		Experience Title & Time in Job-Yrs.	Other (License, etc.)
		Degree(s)	- Continuing Edu.		
<u>SCS Water Resources Planning Staff</u>					
Billy J. Johnson	Staff Leader-3	B.S.	Agri. Engr.	U.S. Army-2 Proj. Constr. Engr.-3 Design Engr.-8 Hydrologist-7	Registered Prof. Engr.
Stephen R. Tully	Biologist-3	B.S.	Biology	U.S. Navy-4 Soil Conserv.-1	
Bob D. Morton	Geologist-6	B.S.	Geology	Engr. Geologist-13	
Thomas J. Lamirand	Hydraulic Engineer-4	B.S. M.S.	Civil Engr. Civil Engr.	Civil Engr.-1 River Basin Plng. Engr.-1 Agri. Engr.-3	Registered Prof. Engr.
William W. Fuller	Soil Conservationist-5	B.A. M.S. Ph.D.	Psy. & Anthro. Field Crops Crop Science	U.S. Army-2 Rancher-5 Graduate Research Assistant-4 Soil Conservationist-5 Pasture Research Supt.-5 Assistant Professor-2	Certified Prof. Agronomis
Dwight E. Waugh	Economist-3	B.A.	Agri. Economist	Soil Conservationist-2	
<u>SCS State Office Staff</u>					
David Thompson	Landscape Architect-2	B.L.A.	Landscape Arch.	Park Planner-4	
<u>Oklahoma Conservation Commission</u>					
Charles Wallis	Archeologist-5	B.S. M.S.	Zoology Natural Sciences	Archeologist-4	Member of the Society of Professional Archeologist



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## APPENDIXES

Appendix A - Letters of Comment Received on Draft EIS

Appendix B - Mitigation and Construction Requirements

Appendix C - Project Map



Appendix A

Letters of Comment Received on  
the Draft Environmental Impact Statement



## Comments and Responses

### U.S. Dept. of Commerce    NOAA

Comment: Planned activity which will disturb or destroy geodetic control survey monuments requires a minimum of 90 days' notification in advance to permit relocation.

Response: Concur

### U.S. Dept. of Commerce    Asst. Sec. for Policy

Comment: Water quality should be discussed in more detail. Measurements of the present sediment condition should be presented.

Response: Because both Lost and Duck Creeks are classed as intermittent streams and because the minor benefit to water quality is an incidental impact, measurements of suspended sediment and turbidity are not considered necessary to a full understanding of the project.

Comment: Errors in the table and the text at page 12 should be corrected.

Response: Corrections made

### U.S. Dept. of Interior    Office of the Secretary

Comment: The statement should address impacts on recreational features and uses along Lost-Duck Creeks.

Response: Project sponsors did not express any desire to include recreation as a project objective. The planned measures will not result in measureable impacts upon recreation supply, needs, or deficiencies.

Comment: The statement appears deficient in describing possible impacts of spoil placement.

Response: A paragraph has been added to the narrative on page 5 to clarify the anticipated effects of spoil disposal.

Comment: It should be noted that a proposed Water and Power Resources Service project (Chikaskia Project, Corbin Damsite) may be located on the Chikaskia River some 20-25 miles northwest of the Lost-Duck Creeks watershed.

Response: Information on this project has been added under Projects of Other Agencies.

Comment: The reduction in water yield to the downstream receiving waters could be quantified and fully discussed in the final statement.

Response: The reduction in water yield at the lower end of the Lost-Duck Creek watershed will represent only about 5 percent of the current average annual yield and probably not be discernible even within the watershed.

Comment: The summary of impacts should include periodic perturbation to aquatic and riparian associated terrestrial species during channel maintenance activities, and project-induced land use changes.

Response: Mowing and drift removal will be done in selected areas as needed and will result in short-term displacement of wildlife species from relatively restricted areas. The maintenance activities will exert no impacts distinctly different, more frequent, or greater in magnitude than agricultural practices presently used immediately adjacent to the channels.



Comment: It would be useful for the reader to understand how much of the 8,826 acres inundated by the 10-year storm was common flood plain and how much of a reduction in agricultural damages would occur during a similar storm with the project installed.

Response: Information has been added under PURPOSE AND NEED to clarify these points.

Comment: It could be misleading to include irrigation under PURPOSE AND NEED if irrigation is not a project purpose. Furthermore, water quality data seems to conflict with the statement made on page 2.

Response: The last paragraph under the PURPOSE AND NEED section has been deleted.

Comment: An absence of environmental considerations is noted in the discussion of alternatives leading to the selected plan. Plan selection appears to be based on economic attributes.

Response: The selected plan was developed in 1968, prior to the passage of NEPA. The only feasible alternatives presently available are to abandon the project or proceed with installation.

Comment: Quantification of specific treatment acreages mentioned on page 3 would be useful in interpreting how much of a contribution would be afforded to the expansion and perpetration of wildlife resources.

Response: This paragraph has been deleted since the anticipated contribution to wildlife resources by these land treatment measures is incidental and difficult to quantify.

Comment: We believe the statements made in the last sentence of each paragraph could be strengthened by adding the following phrase:

". . . . as determined by Soil Conservation Service, Oklahoma Department of Wildlife Conservation, and Fish and Wildlife Service biologists."

Response: Concur. Changed as recommended.

Comment: The SHPO should have been contacted to determine whether any sites surveyed were eligible for the National Register. The results of the cultural resource identification process should be included in the final statement. All coordination efforts with the SHPO should be documented and included in the final statement.

Response: The National Register of Historic Places was checked for properties which might be affected by the project. A cultural resource survey was performed by a professional archeologist. No properties considered eligible for nomination to the National Register were reported. The draft EIS has been provided by the State Clearinghouse through the A-97 review process to the SHPO for comments.

Comment: The reference to "temporary destruction" of aquatic communities on page 16 hardly seems appropriate when channelization includes deepening and widening. At a minimum, we would prefer "the first few years" to be changed to "an unknown period of years" and that the descriptor "temporary" be deleted from the sentence.

Response: The narrative has been rewritten to reflect these comments.



Comment: The section on SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY lacks analysis. Additional information should be provided in the final statement.

Response: The narrative has been modified in an attempt to reflect potential long-term project effects.

#### Public Health Service, Dept. of Health and Human Services

Comment: If there are plans to use this water source in the future as a drinking water supply, the potential impacts should be addressed in the final statement.

Response: There are no plans to use this water source as a drinking water supply.

Comment: The final statement should address the potential for mosquito problems and practical solutions.

Response: The project is located in a 28-inch annual rainfall zone on an intermittent stream with no existing mosquito problem and is not expected to exert any impacts upon mosquito populations.

#### Oklahoma Department of Economic and Community Affairs

Comment: Based on the information received by the state clearinghouse and the response of reviewing agencies, the proposed project is, as of this date, consistent with and contributes to existing state plans and goals in the State of Oklahoma.

Response: Noted

#### Northern Oklahoma Development Association

Comment: The project is consistent with areawide goals and objectives.

Response: Noted

#### Oklahoma Department of Wildlife Conservation

Comment: "Endangered and Threatened Plants and Animals" should either be discussed on page 13 between "Air Quality" and "Economic and Social Aspects" or deleted from the table on page 7. The same comment can be made regarding "Irrigation" which is mentioned on page 12 below "Water Quality."

Response: The endangered species heading in the table on page 7 has been moved up to follow the fish and wildlife heading. The discussion of impacts has also been moved accordingly in the narrative.

Comment: According to the list of species officially promulgated by the U.S. Fish and Wildlife Service, pursuant to the Endangered Species Act of 1973, . . . the whooping crane should be included in the discussion of endangered species.

Response: The SCS consulted with the U.S. Fish and Wildlife Service according to Section 7(c)(1) of the Endangered Species Act. A copy of the response is appended to the EIS.

Comment: "Duck Creek Station" on page 12 could be presented as Table II.

Response: Noted



Comment: The displacement or eradication of all wildlife organisms utilizing the destroyed 57 acres of habitat are a direct adverse impact.

Response: Item 3 under ADVERSE IMPACTS has been modified to reflect this comment.

Comment: COMMITMENT OF RESOURCES should include 57 acres of wildlife habitat which will be permanently removed from wildlife production and hunting opportunity.

Response: Because the wildlife habitat involved in structural measures will be mitigated or replaced there will be no commitment of this resource.

Comment: The LIST OF PREPARERS AND QUALIFICATIONS could be presented as Table III.

Response: Noted





DEPARTMENT OF THE ARMY  
TULSA DISTRICT, CORPS OF ENGINEERS  
POST OFFICE BOX 61  
TULSA, OKLAHOMA 74121

1-66  
(

REPLY TO  
ATTENTION OF:

SWTED-EA

24 July 1980

Mr. Roland R. Willis  
State Conservationist  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, OK 74074

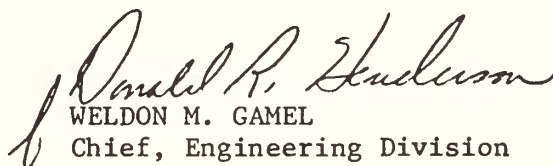
Dear Mr. Willis:

Please refer to your letter of 30 June concerning the Lost-Duck Creeks  
Watershed project in Kay County, Oklahoma.

The placement of dredged or fill material into Lost and Duck Creeks in association with the proposed project falls within the scope of the inclosed nationwide permit (Incl 1). This permit was issued pursuant to Section 404 of the Clean Water Act. Should deviations from the conditions listed in the inclosure occur, you should contact our Regulatory Functions Section to determine whether an individual permit is required.

Sincerely,

1 Incl  
As stated

  
WELDON M. GAMEL  
Chief, Engineering Division





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

Rec'd PP/EC  
AUG 15 1980

AUG 13 1980

OA/C52x6:JLR

TO: PP/EC - Joyce M. Wood  
FROM: OA/C5 - Robert B. Rollins *[Signature]*  
SUBJECT: DEIS #8007.04 - Lost-Duck Creek Watershed; Kay County,  
Oklahoma

The subject statement has been reviewed within the areas of the National Ocean Survey's (NOS) responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

Geodetic control survey monuments may be located in the proposed project area. If there is any planned activity which will disturb or destroy these monuments, NOS requires not less than 90 days' notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments.







**UNITED STATES DEPARTMENT OF COMMERCE**  
**The Assistant Secretary for Policy**  
Washington, D.C. 20230

SEP 9 1980

Mr. Roland R. Willis  
State Conservationist  
USDA Soil Conservation Service  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, Oklahoma 74074

Dear Mr. Willis:

The draft environmental impact statement, "Lost-Duck Creeks Watershed, Kay County, Oklahoma," which accompanied your letter of June 30, 1980, has been received by the Department of Commerce. The statement has been reviewed and the following comments are offered for your consideration. In addition, comments of the National Oceanic and Atmospheric Administration, National Ocean Survey (NOAA/NOS) are enclosed.

The water quality (page 12) should be discussed in more detail in the final environmental statement. Since one of the project benefits will be a reduction of sediment in the streamflow, measurements of the present sediment condition should be presented (e.g., suspended solids, turbidity).

Errors in the table and the text at page 12 should be corrected: sulfate is  $\text{SO}_4$  (not  $\text{SO}^4$ ); S.A.R. is Sodium Adsorption Ratio (not Ration); and the units for pH and S.A.R. are not parts per million as stated in the table heading.

Thank you for giving us the opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving four (4) copies of the final statement.

Sincerely,

Robert T. Miki  
Deputy Assistant Secretary for  
Regulatory Policy (Acting)

Enclosure Memo from Robert B. Rollins  
NOAA/NOS



DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE  
CENTER FOR DISEASE CONTROL  
ATLANTA, GEORGIA 30333

August 15, 1980

Mr. Roland R. Willis  
Soil Conservation Service  
Farm Road and Brumley Street  
Stillwater, Oklahoma 74074

Dear Mr. Willis:

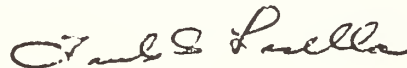
We have reviewed the Draft Environmental Impact Statement for Lost-Duck Creek Watershed, Kay County, Oklahoma. We are responding in behalf of the Public Health Service.

The minimum levels of sulfate and dissolved solids in Duck Creek exceed the recommended maximum levels for drinking water, and the maximum levels recorded during low flows far exceed the recommended levels (page 12). The statement, however, fails to address potential impacts on drinking water. If this water source is not used as a drinking water supply at the present time, are there any plans to use this water source in the future as a drinking water supply? If so, the potential impacts should be addressed in the final statement.

Neither beneficial nor adverse impacts of the project upon local mosquito production was addressed in this statement. The land improvement actions proposed will likely benefit mosquito control through better drainage and improved handling of storm water runoff. The final statement should address the potential for mosquito problems and practical solutions.

We appreciate the opportunity of reviewing this draft statement. We would like to receive a copy of the final when it becomes available.

Sincerely yours,



Frank S. Lisella, Ph.D.  
Chief, Environmental Affairs Group  
Environmental Health Services Division  
Bureau of State Services





# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

AUG 28 1980

In Reply Refer To:  
ER-80/730

Mr. Roland R. Willis  
State Conservationist  
Soil Conservation Service  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, Oklahoma 74074

Dear Mr. Willis:

The Department of the Interior has reviewed the draft environmental statement for the Lost-Duck Creeks Watershed, Kay County, Oklahoma, and offers the following comments and recommendations for your consideration.

## General Comments

The sections of the statement that deal with the affected environment and environmental consequences should specifically address impacts on recreational features and uses along Lost-Duck Creeks. The Oklahoma Statewide Comprehensive Outdoor Recreation Plan should be consulted and an assessment made of recreation supply, needs, and deficiencies. Coordination with Mr. Abe L. Hesser, Executive Director, Oklahoma Tourism and Recreation Department, 500 Will Rogers Memorial Building, Oklahoma City, Oklahoma 73105, and with local parks departments would be helpful in preparing an analysis. The analysis should be included in the final statement.

The statement also appears deficient in describing possible impacts of spoil placement on riparian habitats, land-use changes, and the planned maintenance program. Additional information should be provided.

It should be noted that a proposed Water and Power Resources Service project (Chikaskia Project, Corbin damsite) may be located on the Chikaskia River some 20-25 miles northwest of the Lost-Duck Creeks watershed. If authorized, the Chikaskia Project would provide 98,000 acre-feet of flood storage capacity which would subsequently further reduce flooding potential in the Chikaskia River basin. To help the reader understand the magnitude of potential impacts, it would be helpful if the reduction in water yield to the downstream receiving waters could be quantified and fully discussed in the final statement.



### Specific Comments

Page iii. III. SUMMARY OF IMPACTS. The list should include periodic perturbation to aquatic and riparian associated terrestrial species during channel maintenance activities, and project-induced land use changes.

Page 1. PURPOSE AND NEED. par. 2. It would be useful for the reader to understand how much of the 8,826 acres inundated by the 10-year storm was common floodplain and how much of a reduction in agricultural damages would occur during a similar storm with the project installed.

Page 2. PURPOSE AND NEED. last par. Page 13 of the October 1978 Work Plan indicates a lack of interest in using stored water for irrigation purposes. It could be misleading to include irrigation under such a heading if irrigation is not a project purpose. Furthermore, the dissolved solids level described on page 12 (WATER QUALITY) may preclude the use of stored water for irrigation and seems to conflict with the statement made on page 2. Clarification is desired.

Pages 2 and 3. ALTERNATIVES - INCLUDING THE PLANNED PROJECT. par. 1-4. We note an absence of environmental considerations in the discussion of alternatives leading to the selected plan. Plan selection appears to be based on economic attributes. This section should be strengthened.

Page 3. ALTERNATIVES - INCLUDING THE PLANNED PROJECT. par. 6. Quantification of specific treatment acreages (particularly grass-legume mixtures and food tree plantings) would be useful in interpreting how much of a contribution will be afforded to the expansion and perpetuation of wildlife resources.

Page 5. ALTERNATIVES - INCLUDING THE PLANNED PROJECT. par. 3. Nos. 2 and 3. We believe the statements made in the last sentence of each paragraph could be strengthened by adding the following phrase:

". . . as determined by Soil Conservation Service, Oklahoma Department of Wildlife Conservation, and Fish and Wildlife Service biologists."

Page 13. CULTURAL RESOURCES. The State Historic Preservation Officer (SHPO) should have been contacted to determine whether any sites surveyed were eligible for the National Register. Also, the results of the cultural resource identification process should be included in the final statement. In the event cultural resources are discovered during construction, activities should cease and the SHPO should be contacted immediately to determine appropriate actions. In Oklahoma,



the SPHO is Mr. H. Glenn Jordan, Oklahoma Historical Society, Historical Building, Oklahoma City, Oklahoma 73105. All coordination efforts with the SHPO should be documented and included in the final statement.

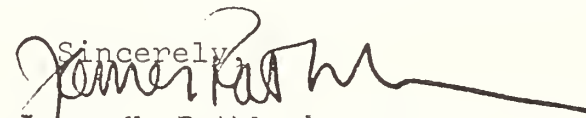
Page 16. ADVERSE IMPACTS. No. 7. As written, this statement connotes channelization will have only slight effects on aquatic communities presently occupying Lost-Duck Creeks. Furthermore, "temporary destruction" hardly seems appropriate when channelization includes deepening and widening. At a minimum, we would prefer "the first few years" be changed to "an unknown period of years" and that the descriptor "temporary" be deleted from the sentence.

Page 16. ADVERSE IMPACTS. See earlier comments on page iii. III. Summary of Impacts.

Page 16. SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY. This section lacks analysis. With nearly a 50 percent reduction of the watershed's forested habitat, long-term productivity will be reduced for forest-dwelling inhabitants. Reforestation may require 40 to 50 years before habitat of similar quality is created. Channel maintenance activities which may include annual mowing or spraying (page 35, Work Plan) will likewise have a long-term impact upon the area's streamside habitats. Additional information should be provided in the final statement.

We recognize the difficulties in predicting impacts of a newly constructed channel on aquatic resources in a previously channelized stream. However, channelization is such a drastic measure that long-term losses to existing aquatic habitats may be anticipated.

We hope these comments will be helpful to you in preparation of a final statement.

Sincerely,  
  
James H. Rathlesberger  
Special Assistant to  
Assistant SECRETARY





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION VI  
1201 ELM STREET  
DALLAS, TEXAS 75270

July 10, 1980

Mr. Roland R. Willis  
State Conservationist - SCS  
Agricultural Center Building  
Stillwater, Oklahoma 74074

Dear Mr. Willis:

We have completed our review of the Draft Environmental Impact Statement (EIS) on the Lost-Duck Creeks Watershed in Kay County, Oklahoma. The purpose of the Watershed Plan is for watershed protection and flood prevention of 55,040 acres. Construction will be completed under the authority of the Watershed Protection and Flood Prevention Act as amended. In the past, floodwaters have damaged approximately 16,000 acres in the Watershed each year.

The Draft EIS presented three flood control alternatives and selected a combination plan. As stated, the selected combination most nearly meets the project objective of flood control at the lowest cost. The selected plan consists of land treatment, 12 floodwater retarding structures and 12.8 miles of channel work.

We classify your Draft Environmental Impact Statement as LO-1. Specifically, we have no objections to the project as it relates to Environmental Protection Agency's (EPA) legislative mandates. The statement contained sufficient information to evaluate adequately the possible environmental impacts which could result from project implementation. Our classification will be published in the Federal Register according to our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act.

Definitions of the categories are provided on the enclosure. Our procedure is to categorize the EIS on both the environmental consequences of the proposed action and on the adequacy of the Impact Statement at the draft stage whenever possible.

We appreciated the opportunity to review the Draft Environmental Impact Statement. Please send our office five (5) copies of the Final Environmental Impact Statement at the same time that it is sent to the Office of Environmental Review, U.S. Environmental Protection Agency, Washington, D.C.

Sincerely,

A handwritten signature in cursive script, appearing to read "Adlene Harrison", is written over the typed name.

Adlene Harrison  
Regional Administrator (6A)

Enclosure



UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20250

OFFICE OF EQUAL OPPORTUNITY

JUL 23 1980

IN REPLY

REFER TO: 8140 - Supp. 8

SUBJECT: Draft Environmental Statement  
Lost Duck Creeks Watershed, Oklahoma

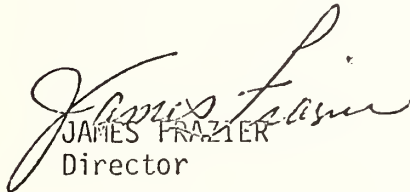
TO:

Roland R. Willis  
State Conservationist

THRU: Verne M. Bathurst  
Deputy Administrator for Administration  
Soil Conservation Service

We have reviewed the Draft Statement and note that you have included the affected minority population and a statement indicating that the impacts of proposed actions will be beneficial. In view of the small number of minority SCS cooperators in the area, it appears that there will be little, or no impact from a civil rights perspective.

Thank you for including civil rights and equal opportunity as a subject in your Draft Statement and for allowing us the opportunity to review it.

  
JAMES FRAZIER  
Director





OKLAHOMA DEPARTMENT OF ECONOMIC AND COMMUNITY AFFAIRS

# State Grant-In-Aid-Clearinghouse

5500 N. WESTERN

OKLAHOMA CITY, OKLAHOMA 73118

(405) 840-2811

August 18, 1980

Mr. Roland R. Willis  
State Conservationist  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, Oklahoma 74074

RE: 01G003 - Draft Environmental Impact Statement for the  
Lost-Duck Creeks Watershed, (SAI #00818002)

Dear Mr. Willis:

The state clearinghouse has completed the review of a project proposal and the environmental assessment recently submitted by your office. Any future communication regarding this proposal should be accompanied by the SAI number referenced above.

Based on the information received by the state clearinghouse and the response of reviewing agencies, the proposed project is, as of this date, consistent with and contributes to existing state plans and goals in the State of Oklahoma. A review of the environmental assessment, as of this date, shows no adverse environmental impact is anticipated. This letter and comments from your areawide clearinghouse must be attached to your application as you apply for federal assistance.

This project application is subject to review at the time of annual renewal or when a continuation is requested. Any application not submitted to or acted upon by the federal funding agency within one year of the date of this letter is subject to re-review by the State Clearinghouse.

You should now proceed with your application to the Environmental Protection Agency for consideration.

Sincerely,

*Lucille McShane*

for Don N. Strain  
Director

DNS:mt

cc: NODA, EPA



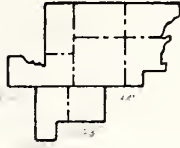
Alfalfa

Grant

Kay

Noble

# Northern Oklahoma



Major

Blaine

Kingfisher

Garfield

## Development Association

3201 Santa Fe Trail • Enid, Oklahoma 73701

Phone (405) 237-4810

August 18, 1980

Mr. Roland R. Willis  
State Conservationist  
Soil Conservation Service  
Farm Road and Bramley Street  
Stillwater, Oklahoma 74074

Dear Mr. Willis:

The Northern Oklahoma Development Association's Land and Housing Resources Advisory Committee reviewed the Lost-Duck Creeks Watershed project on August 13, 1980. The Committee favorably reviewed the project since it is consistent with area-wide goals and objectives.

Sincerely,

A handwritten signature in cursive script that reads "William A. Gomes".

William A. Gomes,  
Director of Planning

WG/db



MERVIN LAWVER  
CHAIRMANJUD LITTLE  
VICE CHAIRMANDOYLE BURKE  
SECRETARYH. B. VAN PELT  
MEMBERELLIS HOLLY  
MEMBERJOHN D. GROENDYKE  
MEMBERBOB MATTHEWS  
MEMBERROY BOECHER  
MEMBER

## DEPARTMENT OF WILDLIFE CONSERVATION

1801 N. LINCOLN

P.O. BOX 53465

OKLAHOMA CITY, OK 73105

PH. 521-3851

GEORGE B. WINT, DIRECTOR

GARLAND FLETCHER, ASSISTANT DIRECTOR

STEVEN ALAN LEWIS, ASSISTANT DIRECTOR

August 19, 1980

Mr. Roland R. Willis  
State Conservationist  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, OK 74074

Dear Mr. Willis:

We have completed review of the Draft Environmental Impact Statement for Lost-Duck Creeks Watershed, Kay County, Oklahoma and wish to submit the following comments:

Page 7, "ANALYSIS OF IMPACTS"

Criteria used to determine degree of impacts should be discussed. "Analysis of Impacts" could be identified as Table I. The table lists "Fish and Wildlife" under "Economic, Environmental and Social Factors" separately from "Endangered and Threatened Plants and Animals"; however, these two categories are combined on page 10. According to the format of this DEIS, each category is discussed separately; therefore, "Endangered and Threatened Plants and Animals" should either be discussed on page 13 between "Air Quality" and "Economic and Social Aspects" or deleted from the table on page 7. The same comment can be made regarding "Irrigation", which is briefly mentioned on page 12 below "Water Quality".

Page 10 (bottom) and Page 11 (top)

According to the list of species officially promulgated by the U.S. Fish and Wildlife Service, pursuant to the Endangered Species Act of 1973, Section 4 of that Act (see enclosure) names the Whooping Crane, Grus americanus as utilizing a migration corridor which includes nearly all of Kay County; therefore, this information should be included in the discussion of endangered species.

Page 12, "DUCK CREEK STATION"

This could be presented as Table II.



Page 16, "ADVERSE IMPACTS 3 "

The displacement or eradication of all wildlife organisms utilizing the destroyed 57 acres of habitat are a direct adverse impact.

Page 17, "COMMITMENT OF RESOURCES"

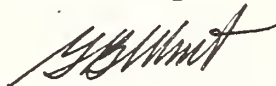
Should include 57 acres of wildlife habitat which will be permanently removed from wildlife production and hunting opportunity.

Page 19, "LIST OF PREPARERS AND QUALIFICATIONS"

This could be presented as Table III.

We appreciate the opportunity to comment on this draft.

Sincerely,

A handwritten signature in dark ink, appearing to read "G. B. Wint", written in a cursive style.

George B. Wint  
Director

Encl.

cc: Sidney Wilkirson, Tulsa F&WS  
Don Strain, State Grant-in-Aid





Historical Building  
Oklahoma City, Oklahoma 73105

July 18, 1980

Mr. Roland R. Willis  
State Conservationist  
U.S. Department of Agriculture  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, Oklahoma 74074

Dear Mr. Willis:

The State Historic Preservation Office has reviewed the proposed Lost-Duck Creeks Watershed project. No effect on any property currently listed in the National Register of Historic Places or the Oklahoma Landmarks Inventory is indicated.

Sincerely,

A handwritten signature in cursive script that reads "H. Glenn Jordan".

H. Glenn Jordan  
State Historic  
Preservation Officer

HGJ:vjv



UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

SA

REPLY TO: 3510 Watershed Protection and  
Flood Prevention (PL 566)

August 4, 1980

SUBJECT: Lost-Duck Creeks, OK  
6/80 Draft Environmental Impact Statement



TO: Roland R. Willis  
State Conservationist  
Soil Conservation Service  
Agricultural Center Building  
Farm Road and Brumley Street  
Stillwater, Oklahoma 74074

We have reviewed the subject document and have no  
comments on it.

M. W. KAGEORGE  
Assistant Area Director



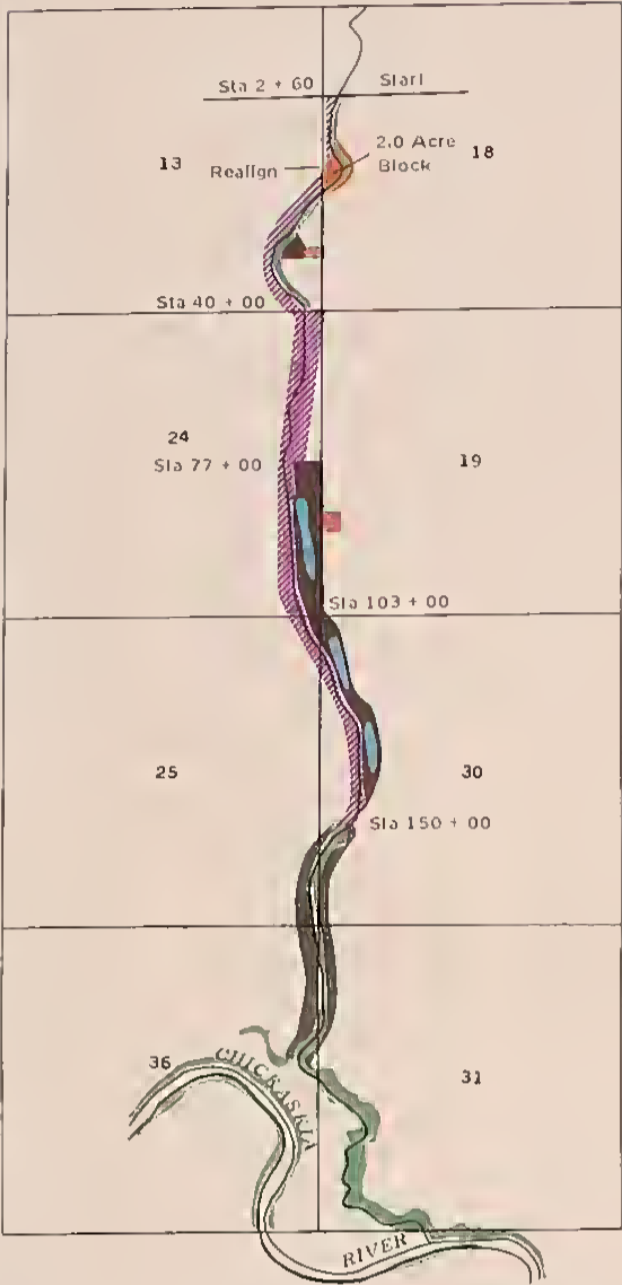
Appendix B

Mitigation and Construction Requirements



DUCK CREEK

LOST CREEK

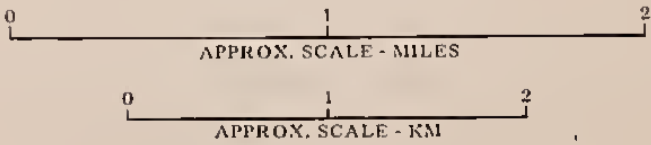


LEGEND

- Recommended Mitigation
- Woodland
- Wetland
- Rangeland
- Farmstead
- Cropland
- Excavated Side (Recommended)
- Selected Clearing and Snagging; Stream Bank Stabilization

(Stations are Approximate)

MITIGATION AND CONSTRUCTION REQUIREMENTS  
LOST - DUCK CREEKS WATERSHED  
KAY COUNTY, OKLAHOMA

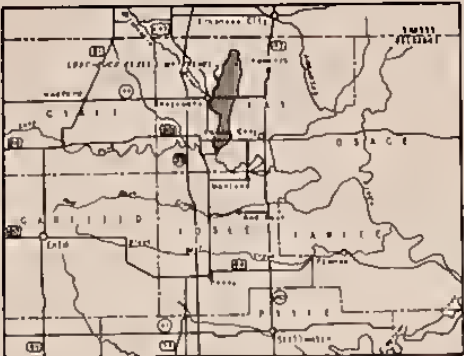


COMPILED FROM FIELD INFORMATION

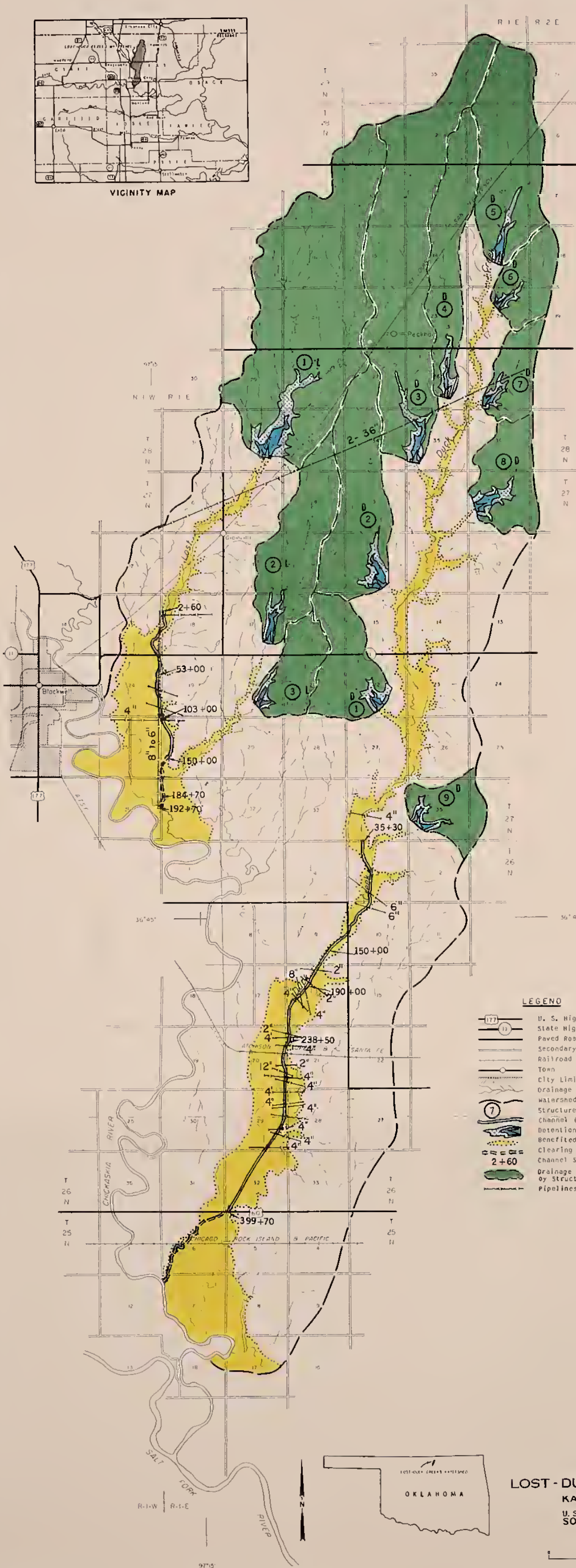


Appendix C  
Project Map





VICINITY MAP



SITE NO.	DRAINAGE AREAS (Acres)
L-1	5,280
L-2	1,606
L-3	813
D-1	992
D-2	2,093
D-3	3,840
D-4	1,600
D-5	2,100
D-6	678
D-7	730
D-8	922
D-9	768

LEGEND

- U. S. Highway
- State Highway
- Paved Road
- Secondary Road
- Railroad
- Town
- City Limits
- Drainage
- Watershed Boundary
- Structure Number
- Channel Improvement
- Detention Structure
- Benefited Area
- Clearing and Snagging
- Channel Stationing
- Drainage Area controlled by Structure
- Pipelines

Figure 4  
PROJECT MAP  
LOST-DUCK CREEKS WATERSHED  
KAY COUNTY, OKLAHOMA  
U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
STILLWATER, OKLAHOMA

1:95,000



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